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TO: Mr. Rinaldi Rada, Supv. URGENT OFFICIAL

August 2, 2004
BY FAX (703) 872-9306
w/attachments (2 pgs)

Mr. Louis B. Tran, Patent Examiner
Group Art Unit 3721
US Patent Office, Washington D.C, 20231

Re: US Pat. Appln. 09/926,736, "DRINK POUCHES AND METHODS OF PRODUCING THEM"
Our File: C-17-60/4 US

Dear Mr. Tran,

During our upcoming meeting on Aug. 11 in your office, I would like to discuss the following:

Claims 1-15, 17-20 are pending in this application. The Examiner has rejected the claims based on Yoshida (4,762,514), Wild (5,868,658), Heller (3,459,625) and Huizinga (5,001,325).

1. The present invention discloses a method of producing a drink pouch made of a multi-layered laminate web material, with the pouch having a specific area of weakness for ease of puncture by a pointy drink straw, with puncture being far easier than in the prior art.

2. The inventor will consider providing the Examiner with a declaration and experimental results showing the specific weakness point is 30% weaker than weakness points seen in prior art drink pouches. The integrity of the pouch is nevertheless retained so that no leakage of liquid contents occurs during transport and storage of the filled pouches.

3. The specific point of weakness is produced by two different methods:
   a. In one embodiment, a hole is punched in the outer three layers of the laminate, as shown in Fig. 4, and the hole is occluded using a layer of molten polyethylene extruded upon the entire inner surface of the pouch.
   b. Alternatively, as shown in Fig. 6, the hole is punched through two outer layers of the laminate, one molten layer of polyethylene occludes the hole, and then a second inner layer of polyethylene is added for strength. This embodiment results in a pouch which is harder to puncture than that seen in Fig. 4, yet it is more resilient and thus will withstand greater forces during transport and handling.

   We propose to modify claim 1 to define the point of weakness as an **integrally formed** part of the pouch, which is created during the manufacturing process with only a punching station necessary, and no extraneous material or machinery is necessary. The manufacturing process remains uninterrupted by the formation of the hole.

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c. In a second embodiment, a movable laser is utilized to form the specific point of weakness upon the final multi-layered web laminate (or upon the final pouch). The laser is moved to create several intersecting lines (for instance, an a "X" shape may be created, or an asterisk shape), with the point of weakness being at the intersection of these lines. At that point the pouch material has been double-scored or multi-scored by several passes of the laser. Page 6, line 12 states "the effect on the sealant layer is strongest where the laser lines intersect and provides a focal weakness in the flexible web material". At the double-scored intersection point, the external structural layer is scored, and thermal changes have been measured in the inner layers as well, since heat is transmitted at the intersection point to all layers of the laminate (see page 11, para. 2). The proposed claim 5 amendment defines the thermal changes providing the weakened puncture point. No such heat effect has been described in prior art laser-scored packaging materials.

4. In contrast, Yoshida teaches use of a laser for creating a weakness point upon a drinking pouch, however there is no disclosure of double-scoring of the pouch material, since the laser is shined at the pouch through a cut-out mask. See col. 2, line 17, which describes the scoring as being made "...by means of a laser which is directed at the bag through a mask having the desired pattern". Thus, even though a laser-scored "X" shape can be created on the pouch by placing a metal mask having a cut-out "X" in the laser beam path, to allow the beam to pass through it, the resultant laser-scored "X" on the pouch will be uniformly weakened over the shape of the "X". The laser beam in Yoshida does not pass over the center of the "X" more than once, and there is no intersection of a plurality of beams and no double scoring.

5. Referring to page 3, paragraph 2 of the Office Action, in Yoshida there is no physical hole which is occluded using molten sealant. The sealant described in column 3, line 19 is present between each of the layers of the multi-layered pouch and acts to bind them together, as is common practice in most multi-layered web laminates for drinking pouches. The Applicant likewise utilizes adhesive or molten sealant between the structural layer and the air-barrier layer to bind these layers together. In Yoshida, small perforations are made in the external structural layer, however these are made by applying a laser externally on the final multi-layered web laminate.

   In contrast, in the Applicant's embodiment described above in 2a, an integrally-formed hole is created during the manufacture of the web laminate by punching through several of the layers then occluding with molten sealant.

6. Wild describes use of a closure sheeting web to seal a hole which extends throughout all layers of the web laminate. All layers of the multi-layered web laminate are punched through (see col. 3, lines 38-40) then a closure sheeting web (2) is welded as a patch upon the hole, to seal it. See Fig. 3, in which four rolls (13) of closure sheeting web (2) are conveyed over the entire width of the drink bag, and not only over the area of each hole (32). Col. 5, lines 29-35 similarly describes the closure sheeting web as extending to the edges of the bag (where they may be sealed again along with the outer perimeter of the bag), and as being weld-able across the entire area of the closure sheeting web (which extends way beyond the hole). The area having the closure sheeting web is thus thickened, and much material is wasted. A welding procedure needs to be performed to seal the patch,

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therefore welding machinery needs to be included in the process, adding further cost to the manufacture.

In contrast, in the present application the hole and its closure are integral to the web laminate, thus providing better reliability and strength. No extra material is used, since the molten sealant is half of the thickness which is commonly used in the prior art (45 microns).

7. The Examiner has taken Official Notice that extruded layers are equivalent to dry layers (page 3, last para. of the Office Action). This is not the case. When dry layers are utilized, adhesive is always added between the layers so that the layers are bound, and the web laminate is structurally sound. In the Applicant's previous attempts, they punched holes in the web laminate and then attempted to seal them using dry layers with adhesive between the layers. However, the adhesive leaked through the holes and gummed up the manufacturing machinery. Recall that the entire procedure takes place upon a conveying system in a continuous uninterrupted process. Only molten sealant such as polyethylene is sufficiently viscous enough to occlude and seal the holes without oozing out the external side of the bag and smearing itself upon the conveyor system and upon unwanted external areas of the bag. Refer to Fig. 6, where the layer of molten sealant (25) is extruded or spread onto the hole (27) where it enters a certain portion of the hole (27) (shaded area), yet does not extend throughout the entire depth of the hole (the hole present in layer 21 is not filled with the sealant). The molten sealant must not leak out through the "far", external side of the bag. Use of molten polyethylene is thus non-obvious and has not been used before to occlude a pre-punched hole.

8. Huizinga discloses use of a movable laser for scoring packaging materials in patterns which are more complex in shape than had been previously been used. Prior to Huizinga, lasers were relatively stationary and could not execute complex scoring patterns such as elliptical shapes for improved aesthetic appearance (for instance as on a tissue box). Scoring in prior art was only as a straight tear line along the edge of a packet (such as a soup packet). Huizinga described use of either two or more stationary lasers, or a movable laser to allow complex scoring patterns and shapes. For instance, he describes complex scoring in several dimensions along a finished cigar box (Figs. 7, 8). However, there is no mention of double scoring in Huizinga, and no suggestion to cross the beam path or make several passes to form a central focal weakness point at the intersection of the beams. That is novel to the present application.

9. In summary, the proposed amendments to the claims serve to distinguish them over the prior art. The issue of the punched hole and its occluding layer being formed as an integral part of the bag during manufacture has been addressed in claim 1, without the need of an additional closure sheeting patch. The proposed amendment to claim 5 aims to functionally describe how double-scoring at the intersection of the beam paths alters the bag at the intersection point. There, the external structural layer is scored, and heat transmission changes the internal layers, so that they are weakened as well. Heat does not similarly accumulate and induce changes in inner layers in prior art single scoring.

Thank you for the opportunity to discuss these matters. Respectfully submitted,

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